## This Page Is Inserted by IFW Operations and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

## IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

What is claimed is:

- 1. A metallic material for an electronic component, said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0% by weight, a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content
- 2. A metallic material for an electronic component,
  10 said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0% by weight.
- said metallic material for effect renic components, said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from the group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.
  - 4. The metallic material for an electronic component according to one of claims 1 to 3, said metallic material having electrical resistance lower than 10  $\mu$   $\Omega$  cm.
- 25 5. A metallic material for an electronic component,

said metallic material consisting of a ternary alloy including mainly of Cu, Mo in an amount of 0.1 to 3.0% by weight and one element selected from a group consisting of Al, Au, Ag, Ti, Ni, Co and Si in an amount of 0.1 to 3.0% by weight.

5

- 6. The metallic material for an electronic component according to claim 5, said metallic material having electrical resistance higher than 1.5  $\mu$   $\Omega$  cm and lower than 7.0  $\mu$   $\Omega$  cm.
- 7. The metallic material for an electronic component according to one of claim 1, claim 2, claim 3 and claim 5, said metallic material being much as a material for any one of a wiring pattern, an electrode, a contact and a target for a sputtering process.
- 8. An electronic component having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni, Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.
  - 9. An electronic component having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of a binary alloy

including mainly Cu and Mo in an amount of 0.1 to 3.0% by weight.

an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Cr. Ta. and Consisting of Al. Au. Ag. Ti. Ni Co and Si in a total amount of 0.1 to 3.0% by weight amount of 0.1 to 3.0% by weight and Cu as a remaining content.

-200

**;** .

11. The electronic component according to one of claims 8 to 10 passage electrode or a contact which are formed by an etching process using a solution including phosphoric acid and nitric acid.

15

20

- 12. The electronic component according to one of claims 8 to 10, said electronic component having a wiring pattern, an electrode or a contact which are formed by an etching process under a gas atmosphere including chlorine.
  - 13. The electronic component according to one of claims 8 to 10, said electronic component having region other than a wiring pattern, an electrode and a contact

are formed by an etching process under a gas atmosphere including fluorine.

- 14. The electronic component according to one of claims 8 to 10, said electronic component having a wiring pattern, an electrode or a contact which are formed by a heat treatment in the range of the temperatures from 100 % to 750 %.
- 15. The electronic component according to one of claims 8 to 10, said electronic components having a wiring pattern, an electrode or a contact which are formed on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, exidation silicon and silicon nitride.
- 16. The electronic component according to one of claims 8 to 10, said electronic component having a wiring pattern, an electrode or a contact which are directly formed on a substrate made of one of glass or plastic resin.
- an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni

  Co and Si in a total amount of 0.1 to 3.0% by weight

and Cu as a remaining content.

5

20

- 18. An electronic device having a wiring pattern, an electrode or a contact using a metallic material, said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight.
- an electrode or a contact using a metallic material, said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al. Analogy Ti, Ni Coloro Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.
  - 20. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed by an etching process using a solution including phosphoric acid and nitric acid.
  - 21. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed by an etching process under a gas atmosphere including chlorine.

22. The electronic device according to one of claims 17 to 19, said electronic device having region other than a wiring pattern, an electrode and a contact, are formed by an etching process under a gas atmosphere including fluorine.

5

10

15

20

- 23. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed by a heat treatment in the range of the temperatures from 100  $^{\circ}$  to 750  $^{\circ}$ .
- 24. The electronic device according to one of claims 17 to 19, said electronic device having a wiring pattern, an electrode or a contact which are formed on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride.
- 25. The electronic device according to one of claims
  17 to 19, said electronic device having a wiring pattern,
  an electrode or a contact which are directly formed on
  a substrate made of one of glass or plastic resin.
- 26. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni

Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched by using a solution including phosphoric acid and nitric acid to form a wiring pattern, an electrode or a contact.

27. A working method of a metallic material, in which a metallic film consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is etched by using a solution including phosphoric acid and nitric acid to form a wiring pattern, an electrode or a contact.

5

10

- which as metallic film acconstitute as found alloy including mainly Cu having a composition of one or a plurality of elements selected amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight amount of 0.1 to 3.0% by weight amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched by using a solution including phosphoric acid and nitric acid to form a wiring pattern, an electrode or a contact.
  - 29. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements

selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched under a gas atmosphere including hydrochloric acid to form a wiring pattern, an electrode or a contact.

5

10

15

- 30. A working method of a metallic material, in which a metallic film consisting of a binary alloy including mainly of Cu and Mo in an amount of 0.1 to 3.0% by weight is etched under a gas atmosphere including hydrochloric acid to form a wiring pattern, an electrode or a contact.
- 31. A working method of a metallic material, in which a metallic film consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al. Au. Ag. Ti. Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is etched under a gas atmosphere including hydrochloric acid to form a wiring pattern, an electrode or a contact.
- 32. Amanufacturing method of electronic component, in which a metallic film is consisted of an alloy including mainly Cu and having a composition of Mo in

an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al. Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content, and a film other than said metallic film is worked by an etching process under a gas atmosphere including fluorine.

33. A manufacturing method of an electronic component, in which a metallic film is consisted of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight, and a film other than said metallic film is worked by an etching process under a gas atmosphere including of luorine.

-

\*\*

- components which a metallic falm is consisted of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al. Au. Ag. Ti. Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content, and a film other than said metallic film is worked by an etching process under a gas atmosphere including fluorine.
- 35. A working method of a metallic material, in which a metallic film formed by said metallic material

consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is subjected to a heat treatment in the range of temperatures to 100~% to 750~% to form a wiring pattern, an electrode or a contact.

5

36. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is subjected to a heat treatment in a range of temperatures to 100 °C to 750 °C to form a wiring pattern, an electrode or a contact.

1

which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al. Au. Ag. Ti. Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is subjected to a heat treatment in a range of temperatures to 100 °C

to 750  $^{\circ}$  to form a wiring pattern, an electrode or a contact.

which a metallic film formed by said metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silliconand silliconant contact.

5

10

- which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin cxide, titanium nitride, oxidation silicon and silicon nitride to form a wiring pattern, an electrode or a contact.
  - 40. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected

from a group consisting of Cr, Ta, W and Ti in a total amount of 0.1 to 3.0% by weigh, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is deposited on a backing layer made of one of Ti, W, Ta, Mo, indium tin oxide, titanium nitride, oxidation silicon and silicon nitride to form a wiring pattern, an electrode or a contact.

- which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is directly deposited on a substrate made of glass or resin such as plastic to form a wiring pattern, an electrode or a contact.
- 20 42. A working method of a metallic material, in which a metallic film formed by said metallic material consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1 to 3.0 % by weight is directly deposited on a substrate made of glass or resin such as plastic to form a wiring pattern, an electrode or

a contact.

5

10

- which a metallic film formed by said metallic material consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Cr. Ta. W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al. Au. Ag. Ti. Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content is directly deposited on a substrate made of glass or resin such as plastic to form a wiring pattern, an electrode or a contact.
- reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of an alloy including mainly Cu and having a content of Mo in an amount of 0.1 to 3.0 % by weight, one or a plurality of elements selected from a group consisting of Al, Au, 20 Ag, Ti, Ni, Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.
  - 45. An electronic optical component having reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of a binary alloy including mainly Cu and Mo in an amount of 0.1

to 3.0 % by weight.

5

10

46. An electronic optical component having reflective film, an electrode or a wiring pattern which are formed by a metallic film consisting of an alloy including mainly Cu and having a composition of one or a plurality of elements selected from a group consisting of Cr. Ta, W and Ti in a total amount of 0.1 to 3.0% by weight, one or a plurality of elements selected from a group consisting of Al, Au, Ag, Ti, Ni Co and Si in a total amount of 0.1 to 3.0% by weight and Cu as a remaining content.